

# Natural Resource Management I

**Levels: Grades 9-12**

**Units of Credit: Year (1.0)**

**CIP Code: 030111**

**Prerequisite: None**

## **COURSE DESCRIPTION**

Students will participate in activities that include instruction on the importance of production management and conservation of our natural resources, ecology, and fish and wildlife. Field and laboratory experiences will be emphasized.

## **CORE STANDARDS, OBJECTIVES, AND INDICATORS**

### **STANDARD**

**030111-01 Students will develop an understanding of the role of FFA in Agricultural Education Programs.**

### **OBJECTIVES**

- 030111-0101 Students will explore the history and organization of FFA.
- Students will explain how, when, and why the FFA was organized.
  - Students will explain the mission and strategies, colors, motto, parts of the emblem, and the organizational structure of the FFA.
  - Students will recite and explain the meaning of the FFA Creed.
  - Students will explain the purpose of a Program of Activities and its committee structure.
- 030111-0102 Students will discover opportunities in FFA.
- Students will describe how the FFA develops leadership skills, personal growth, and career success.
  - Students will identify major state and national activities available to FFA members.
- 030111-0103 Students will determine FFA degrees, awards, and CDE's.
- Students will explain the FFA degree areas.
  - Students will identify the FFA proficiency awards.
  - Students will explain various team and individual Career Development Events.

### **STANDARD**

**030111-02 Students will understand the benefits of a Supervised Agricultural Experience (SAE) Program.**

### **OBJECTIVES**

- 030111-0201 Students will determine the benefits of an SAE.
- Students will explain the importance of goals and career ladders.
  - Students will define supervised horticultural/agricultural experience.
  - Students will explain the benefits of supervised horticultural/agricultural experience programs.

- 030111-0202 Students will determine the kinds of SAE programs.
- Students will explain the difference between entrepreneurship and placement SAEs.
  - Students will describe research/experimentation and exploratory SAEs.
  - Students will explain the characteristics of a good SAE program and student responsibilities that are involved.
- 030111-0203 Students will research possible SAE programs.
- Students will identify career interest areas in agriculture.
  - Students will identify skills needed for career success.
  - Students will explain opportunities for SAE programs.
- 030111-0204 Students will plan an SAE program.
- Student will identify the steps in planning an SAE program.
  - Student will identify the parts of an annual SAE program plan.
  - Student will discuss the function of a training plan and/or agreement in an SAE program.
- 030111-0205 Students will implement SAE programs.
- Students will discuss the importance of keeping records on an SAE program.
  - Students will explain the types of financial records needed to support a chosen SAE program.
  - Students will identify standards to follow in keeping records on an SAE program.

#### **STANDARD**

#### **030111-03 Students will appraise career opportunities in Natural Resources Science and Management**

##### **OBJECTIVES**

- 030111-0301 Students will explore career opportunities in natural resources.
- 030111-0302 Students will use available handbooks, career information, and computerized career information delivery systems to aid career exploration or to formulate tentative career choices.
- 030111-0303 Students will develop goals related to future employment.
- 030111-0304 Students will obtain education needed for a job.
- 030111-0305 Students will identify occupational competencies.
- 030111-0306 Students will match interests and aptitudes to an occupational area.
- 030111-0307 Students will interview prospective employers.

#### **STANDARD**

#### **030111-04 Students will explore natural resources.**

##### **OBJECTIVES**

- 030111-0401 Students will identify types of natural resources.
- 030111-0402 Students will distinguish between renewable and nonrenewable resources.
- 030111-0403 Students will explain the difference between inexhaustible and exhaustible resources.
- 030111-0404 Students will explain the concept of interdependent relationships.

**STANDARD**

**030111-05** Students will examine the relationship between natural resources and society, including conflict management.

**OBJECTIVES**

- 030111-0501 Students will define natural resource management.
- 030111-0502 Students will identify and compare major natural resource management agencies and companies.
- 030111-0503 Students will describe human demands on natural resources.
- 030111-0504 Students will explain natural resource conservation.
- 030111-0505 Students will participate in a conflict management activity.

**STANDARD**

**030111-06** Students will understand ecology, ecosystems, and biomes.

**OBJECTIVES**

- 030111-0601 Students will define concepts (i.e. communities, ecosystems, population ecology, food web, homeostasis, and succession).
- 030111-0602 Students will explain natural selection and succession.
- 030111-0603 Students will identify communities found in nature.
- 030111-0604 Students will explain population ecology.
- 030111-0605 Students will describe food relationships found in nature.
- 030111-0606 Students will identify biomes and explain ecosystem diversity.
- 030111-0607 Students will use taxonomy keys to identify common plants and animals.
- Identifying and classifying game birds.
  - Identifying and classifying game animals.
- 030111-0608 Students will use research methodologies to investigate an ecological problem.

**STANDARD**

**030111-07** Students will demonstrate an understanding of water resources, watersheds, and management.

**OBJECTIVES**

- 030111-0701 Students will investigate the water cycle.
- 030111-0702 Students will survey local area for pollution sources.
- 030111-0703 Students will assess watershed management methods.
- 030111-0704 Students will describe the impact of watershed management on local communities.
- 030111-0705 Students will calculate the potential water holding/runoff capacity of a watershed.
- 030111-0706 Students will explain water distribution for an irrigation district.
- 030111-0707 Students will identify local drinking water sources and measures, which may be taken to protect the quality of the drinking water.
- 030111-0708 Students will discuss current regulations associated with water quality and water pollution (surface and ground water).

**STANDARD**

**030111-08** Students will demonstrate an understanding of air resources and management.

**OBJECTIVES**

- 030111-0801 Students will describe the effects of air pollution on people and their environment.
- 030111-0802 Students will assess methods of controlling air pollution.

- 030111-0803 Students will demonstrate air-monitoring techniques.  
030111-0804 Students will collect and interpret weather data.  
030111-0805 Students will design an air quality management plan as it relates to federal and state laws.

**STANDARD**

**030111-09 Students will demonstrate an understanding of range resources and management.**

**OBJECTIVES**

- 030111-0901 Students will analyze the interrelationships between range management and other natural resource activities.  
030111-0902 Students will evaluate range management systems, economics, and improvement techniques including fire.  
  
030111-0903 Students will determine
  - Livestock use on rangeland.
  - Wildlife use on rangeland.  
030111-0904 Students will describe plant environment interactions.  
030111-0905 Students will establish a range transect and use it to evaluate a specific location.

**STANDARD**

**030111-10 Students will analyze waste generation, waste reduction, disposal and impacts.**

**OBJECTIVES**

- 030111-1001 Students will discuss recycling and its relationship to the environment.  
030111-1002 Students will compare off-site disposal methods for waste disposal.  
030111-1003 Students will compare and contrast the following as waste disposal methods:
  - Septic systems.
  - Municipal wastewater treatment.

**STANDARD**

**030111-11 Students will demonstrate understanding of land classification, planning inventory, and monitoring methods.**

**OBJECTIVES**

- 030111-1101 Students will describe the interrelationships between land use planning and natural sources.  
030111-1102 Students will demonstrate in public how GIS applies to land use planning.  
030111-1103 Students will survey a site to determine potential land use.  
030111-1104 Students will identify the components of a monitoring plan.  
030111-1105 Students will compare and contrast the various inventory/sampling methodologies (i.e., population estimation).  
030111-1106 Students will analyze a current, local Environmental Impact Statement (EIS) and determine the preferred alternative.  
030111-1107 Students will develop a basic plan for monitoring a natural resource project.  
030111-1108 Students will participate in public involvement processes in land use planning.

**STANDARD**

**030111-12**    **Students will use computer technologies to solve environmental problems.**

**OBJECTIVES**

**030111-1101**    Students will use computer technologies in natural resource business and management.